



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,857	05/27/2005	Luigi Resconi	FE 602 (US)	4406

34872 7590 05/09/2006

BASELL USA INC.  
INTELLECTUAL PROPERTY  
912 APPLETON ROAD  
ELKTON, MD 21921

EXAMINER
----------

LU, C CAIXIA

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,857	<b>Applicant(s)</b> RESONI ET AL.	
	<b>Examiner</b> Caixia Lu	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 11-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/24/06</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-10 wherein the elected metallocene complex is defined by formula (I) together with formula (III) in the reply filed on March 24, 2006 is acknowledged. The traversal is on the ground(s) that 37 C.F.R. 1.475 (b) (2) states that claims drawn to the combination of category of a product and a process will be considered to have unity of invention. However, under 37 C.F.R. 1.475 (a), it requires such a combination of claimed inventions to have a "special technical features" first. Because Group I and II of the instant claims does not share a "special technical features" as indicated in the previous Office action, they do not comply with the requirement of unity of invention as set forth in 1.475 (a)-(e).

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewen et al. (WO 01/44318, its US patent, US 6,635,779, is referred to hereinafter).

The instant claims are directed to a polymerization process for preparing 1-butene copolymer in the presence of a specific metallocene complex catalyst and aluminoxane cocatalyst, wherein the comonomer has a formula of  $\text{CH}_2=\text{CHZ}$  with Z

Art Unit: 1713

being a C<sub>3</sub>-C<sub>20</sub> hydrocarbon, and the elected metallocene complex is metallocene having a ligand of cyclopentadienyl ring fused with thiophene.

Ewen teaches an olefin polymerization process for preparation of isotactic polyolefin in the presence of metallocene catalyst and aluminoxane cocatalyst (col. 4, lines 12-52; col. 6, line 64 to col. 7, line 30; col. 21, lines 1-14; col. 22, lines 38-44; col. 23, lines 8-36; col. 26, lines 9-30; and col. 45, line 28 to col. 46, line 21). It is noted that Ewen only exemplifies 1-butene homopolymerization and propylene-1-butene copolymerizations in Examples 50-54. However, Ewen does expressly teach those metallocene catalyst can be used to copolymerize olefins such as 1-butene, 1-pentene, 1-hexene, etc. in col. 23, 8-36.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Mendez's teaching to copolymerize 1-butene and higher  $\alpha$ -olefins to provide isotactic olefin polymer with desired properties since such is within the scope of Ewen's disclosure and in the absence of any showing criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.  
Primary Examiner